

Provided are an etching method which uses an additive gas stably suppliable also in future, is reduced in the problem of particle contamination, is free from the problem of removability of side-wall protection film and has high shape controlling capacity, and a manufacturing method a highly-reliable semiconductor device by using this etching method. This etching method comprises depositing metal film including an aluminum over a semiconductor device and etching the metal film with a plasma of a mixture gas containing a Cl_2 gas, a BCl_3 gas and a CH_2Cl_2 gas.